






**Synapse**  
Energy Economics, Inc.

Comments on EEU Demand Resources Plan  
on Behalf of  
the Conservation Law Foundation and VPIRG

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## Summary of Conclusions & Recommendations

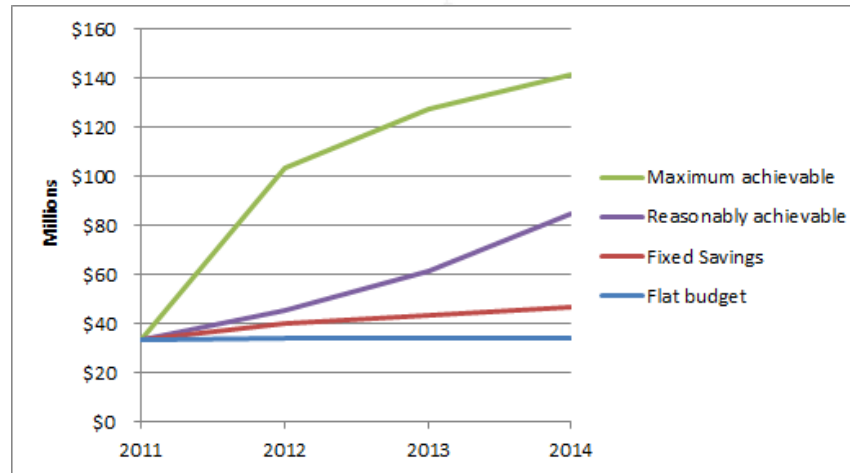
- There remains a large potential of untapped EE in VT.
- VT Law requires EEU's budgets to capture all reasonably available cost-effective efficiency savings.
- EEU budgets must be set to comply with this mandate:
  - Budget should be increased to reach \$85 million/year by 2012.
- Reasonably Achievable budget proposal (million \$):

	2011	2012	2013	2014
Fixed Savings	\$33	\$40	\$43	\$47
Reasonably Achievable	\$33	\$45	\$61	\$85

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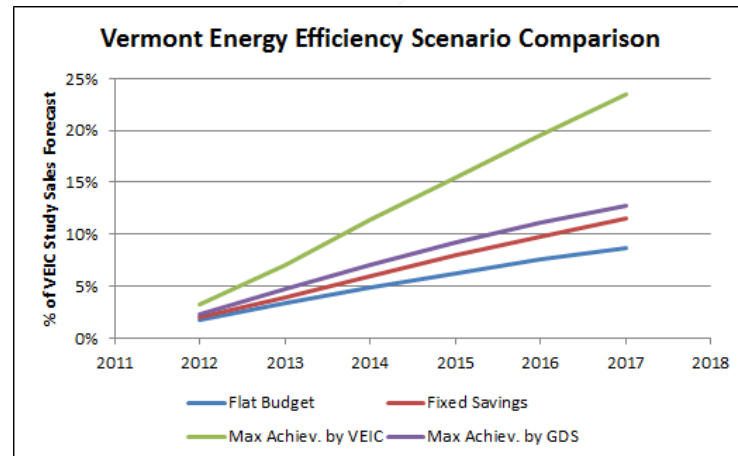
## Alternative Budget Proposals



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## VEIC and GDS Potential Studies



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## VEIC and GDS Potential Studies

Scenario	Benefit-Cost Ratio
VEIC:	
Flat Budget	2.6
Fixed Savings	2.9
Maximum Achievable Potential	2.4
GDS / Cadmus Max. Achievable	2.3

- Reasonably Achievable budget B/C ratio likely to fall between 2.4 and 2.9.
- However, B/C is not the way to set the budget. Choosing a spending level or savings target that maximizes the B/C ration is a recipe for cream-skimming

## VEIC Scenarios

- GDS study top down, VEIC built up from expected capabilities, so will focus on VEIC study.
- VEIC study addressed three scenarios:
  - Flat Budget
  - Fixed Savings (3% per year)
  - Maximum Achievable Potential
- All scenarios were highly cost-effective (see next slide).
- Unfortunately, VEIC's Fixed Savings scenario is arbitrary and so does not represent the Reasonably Achievable potential.
- VEIC did not analyze a Reasonably Achievable Potential scenario.

## Economic Benefits of Energy Efficiency

	Flat Budget	Fixed Savings	Maximum Achievable
Costs (\$mil)	\$619	\$675	\$1,487
Benefits (\$mil)	\$1,632	\$1,954	\$3,599
Net Benefits (\$mil)	\$1,013	\$1,279	\$2,112
Benefit-Cost Ratio	2.6	2.9	2.4

Source: VEIC 2011. Alternative 20-Year Electric Energy Efficiency Scenarios – VEIC Analysis and Recommendations, Table 2.

**>> There is no dispute that a large amount of highly cost-effective EE resources remain to be garnered in Vermont.**

## EE Cuts Planning & Financial Risk

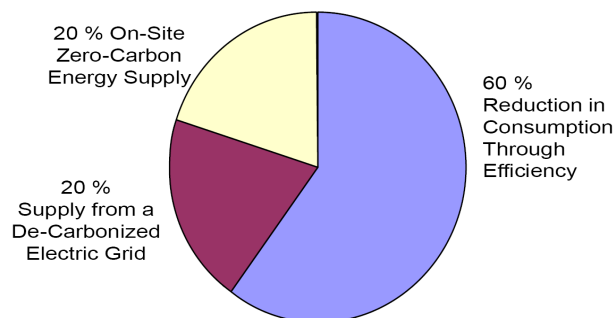
- By slowing the growth of peak demand, or causing peak demand to decline, EE reduces volatility and provides greater time for industry to respond to changing conditions.
- EE cuts the planning & financial risk associated with supply-side resources. The Board has long recognized this.
  - Ending of current VY and HQ contracts
  - Uncertain timing of deployment for new renewables
  - Market price volatility
  - Potential electrification uncertainties
- EE cuts the financial risk associated with environmental compliance costs.

## EE is Essential to Address Climate Change

- EE is the lowest cost resource to address climate change.
- EE is the lowest risk resource to address climate change.
  - No regrets strategy.
- EE requires ramping up of policies, planners, technologies, manufacturers, contractors, architects, and other infrastructure.
  - Important to be building the infrastructure now to address short-term and long-term climate change requirements.
- Energy efficiency will need to play a significant role reducing carbon emissions (see next slide).

## EE in a Carbon Constrained World: One View

### A Reasonable Mix of Strategies to Achieve Zero Carbon in Buildings by 2050



Source: Blair Hamilton, *A Vermont Roadmap to a Zero-Carbon Building Sector by 2050*, March 2011.

## EE Helps to Avoid T&D Costs

- Reducing peak demand reduces pressure on distribution system:
  - Reduced maintenance costs of existing system.
  - Reduced need to add new distribution lines.
- EE, especially combined with demand response and distributed generation, can defer or displace the need for new transmission in VT and the region.
- ISO New England is currently investigating opportunities for demand-side resources to provide alternatives to transmission investments.
  - ISO-NE, *Nontransmission Alternatives Analysis*, Preliminary Results of the NH/VT Pilot Study, April 13, 2011.

## EE Price Suppression Effects

- EE will reduce the price of the wholesale energy and capacity markets in New England.
  - Lower peak and energy demands means that marginal supply-side resources are dispatched less.
  - This results in a lower market clearing price.
- That price suppression effect also benefits Vermont ratepayers.
- This benefit flows to all customers in VT, regardless of whether they participate in the EE programs or not.



## Additional EE Benefits

- Additional avoided environmental impacts:
  - Reduced emissions of SO<sub>2</sub>, NO<sub>x</sub>, air toxics.
  - Reduced solid wastes from fossil plants.
  - Reduced land use with fewer power plants and less T&D.
- Reduced consumption of fossil fuels.
- Reduced consumption of imported fuels.
- Local job creation.

## Rate Impacts of Different EE Scenarios

- Rate impacts are seen as an important consideration in determining EE budget and savings levels.
  - This appears to be why VEIC & DPS are recommending the Fixed Savings scenario over the Maximum Achievable scenario.
- VEIC study indicates that rate impacts of the Fixed Savings scenario will be modest (see next slide).
- The Reasonably Achievable scenario will result in a better balance of economic benefits and rate impacts.
  - Greater economic benefits.
  - Greater number of participants.
  - Reasonable rate and bill impacts.

## Rate Impacts and EE benefits

- Rate impacts are offset by the benefits of energy efficiency.
- Cost effectiveness evaluations indicate that for every dollar spent on EE, Vermont consumers save roughly 2.5 dollars.
- The Reasonably Achievable scenario budget exceeds the Fixed Target budget (for 2012-2014) by \$62 million.
- This suggests that the Reasonably Achievable scenario budgets (for 2012-2014) will reduce electricity costs by \$155 million more than the Fixed Savings budgets.
- The Reasonably Achievable scenario also has increased benefits in terms of risk reduction, avoided T&D costs, reduced environmental impacts, reduce consumption of fossil fuels, and job creation.

## The Importance of Considering Participants

- In general, customers that participate in EE programs will see their bills reduced, despite any rate increases.
- For a typical residential customer, installing only ten CFLs (or another, more advanced technology) would reduce bills by over 6%.
- For a Residential customer, participating in EE retrofit programs can reduce bills by 10% - 30% or more.
- For a C&I customer, participating in EE retrofit programs can reduce bills by 20% - 40% or more.



## Customer Participation to Date

- A significant portion of customers has participated in Efficiency VT programs to date. For 2001-2009:
  - Roughly 17% of commercial/industrial customers have participated.
    - On average C&I participants saved roughly \$707/yr.
  - Roughly 11% of residential customers have participated:
    - Includes only home retrofits and new construction.
    - On average residential participants saved roughly \$144/yr.
- A variety of additional efficiency savings were delivered to customers through the Efficient Products program.

## Opportunities to Increase Participation

- One of the goals of EEU should be to increase participation, in order to (a) achieve all cost-effective EE over time and (b) help offset rate increases.
- Participation can be increased:
  - through program design (i.e., by creating opportunities for all to participate);
  - through program marketing and outreach;
  - through increasing budgets.
- If EEU is to eventually implement all cost-effective EE, then the vast majority of customers should participate.

We urge the parties to remember that the goal of increasing participation must be achieved in such a way as to not create lost opportunities and to minimize cream-skimming.

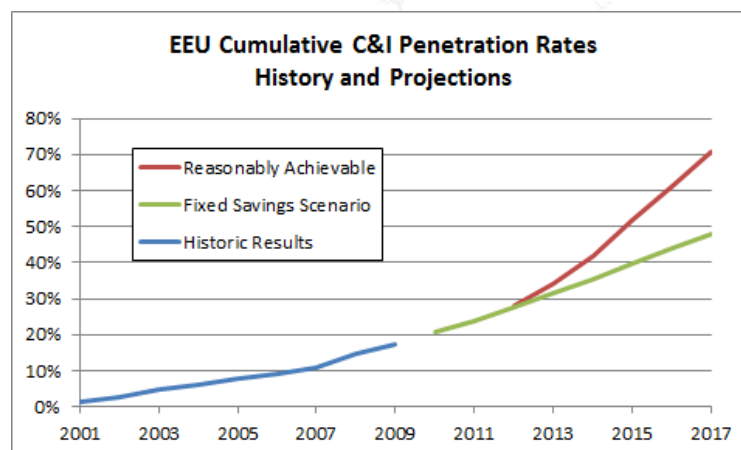
## Participation under Future Scenarios

- While the Reasonably Achievable scenario budgets will have greater rate impacts than the Fixed Savings scenario, there will be a larger number of participants:
- Rough estimate of cumulative participation rates:
  - (Based on extrapolating historic rates of participation per dollars spent.)

	2014	2017
<b>Fixed Savings</b>		
Residential	26%	37%
C&I	36%	48%
<b>Reasonably Achievable</b>		
Residential	31%	55%
C&I	42%	71%

- Before long, the majority of customers will see lower bills.

## Participation under Future Scenarios



## Benefits of EE that Flow to All Customers

While it is important to account for participation rates when considering rate impacts, it is also important to remember that EE offers a variety of benefits to all customers, not just participants.

- Reduced financial risk associated with supply-side resources and environmental compliance costs.
- Avoided transmission and distribution costs.
- Price suppression on wholesale electric markets.
- Lowest-cost option for addressing climate change.
- Additional avoided environmental impacts.
- Reduced consumption of fossil fuels.
- Local job creation.

## EE Infrastructure and Capacity Issues

- We have not seen any evidence that the Reasonably Available proposal is not achievable with existing infrastructure.
- One of the EEU's goals should be to help develop the state's EE infrastructure (e.g., through capacity building, contractor training, education, etc.).
- Ramping up the budgets over time allows for EEU to assist in developing the necessary infrastructure and capacity to address larger budgets in later years.
- Budgets lower than the Reasonably Available proposal may limit the extent to which EEU can develop the infrastructure.

## Conclusion

- There is ample achievable and cost-effective EE potential in Vermont.
- VT Law requires EEU' s budgets to capture all reasonably available cost-effective efficiency savings.
- The Fixed Budget proposal fails to meet that standard. EEU budgets must be set to comply with this mandate:
  - Budget should be increased to reach \$85 million/year by 2012.
- Failure to do so will deprive Vermonters of available bill savings and environmental benefits, put them unnecessarily at risk of unanticipated power costs, and prevent the State from positioning itself to address long term climate change needs.